REMARKS/ARGUMENTS

This amendment is submitted in response to the Final Rejection dated January 11, 2011. After entry of this amendment, claims 5-26, 33-38, 40-41, 43-50, 52 and 53 will continue to be pending in the application. Claims 1-4, 27-32, 39, 42 and 51 have previously been canceled. Claims 14, 21, 37 and 41 have been amended. Amendments to the claims have been made to correct dependencies, improve clarity and advance prosecution.

Reconsideration and allowance is respectfully requested in view of the remarks made below.

1.   Improper Final Rejection

In the previous office action the Examiner failed to reject claims 10, 14, 37, 41, 52 and 53 using prior art. The claims were previously only subject indirectly to a rejection under 35 U.S.C. §112 rejection or a §101 rejection. In this Office Action the Examiner newly rejects claims 10, 14, 37, and 41 using prior art, however still made the rejection final, citing as basis therefore that the amendment necessitated the new grounds for rejection. Since there effectively was no amendment to the specific limitations found within claims 10, 14, 37 and 41 and Applicant merely incorporated the claims from which the non-art rejected dependent claim depended from, the claims should have been allowable provided the formalities raised in the rejection were addressed. The rejections were addressed and the claims should have been allowed. To now raise new grounds for rejections requires that the Examiner issue a non-final rejection.

Applicant respectfully submits that the Examiner's actions were procedurally improper and requests that the finality of the most recent Office Action be removed. Applicant awaits immediate notification of the removal of finality as well as the allowance of the Application.

2.   **Claim Objections**

Claim 21 stands objected to because of the following informalities: Claim 21 recites "The data analyzer according to any one of claims 4-20."   Claim 4 has been canceled and therefore claim 21 should not recite that it is dependent upon it. In response, Applicant has amended claim 21 to correct the error made with respect to dependency.

Applicant respectfully submits that the amended claim overcomes the objection and requests notice to that effect.

3.   **The Rejection under 35 U.S.C. §101**

Claims 33-38, 40, 41, 43-50, 52 and 53 stand rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

The Office Action asserts that claims 33-38, 40, 41, 43-50, 52 and 53 are not patent eligible because the claims merely recite mathematical concepts without the recitation of a machine in which to perform such steps or without the recitation of an actual transformation of the data to a different state or thing. Although the applicant does not concede the correctness of this objection, these claims have been amended in accordance with the suggestion of the Examiner in order to advance prosecution of the application.

The office action suggested amending language such as "a method for analyzing a set of indexed data from a collection of spectra obtained via mass spectrometry to compress a set of data," to language such as "a method for analyzing a set of indexed data that includes obtaining a collection of spectra using mass spectrometry." Applicant has amended independent claims 37 and 41 in the manner suggested by the Examiner. Independent claims 52 and 53 have also been amended in the manner suggested by the Examiner. Applicant respectfully submits that the claims as amended overcome the rejection under 35 U.S.C. § 101.

Claims 33-36, 38, 40 and 43-50 are also in condition for allowance by virtue of their dependence upon an allowable base claim. Notice to that effect is respectfully requested.

4.   The Rejection under 35 U.S.C. §112

Claims 22-26, 52 and 53 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 22-26, 52 and 53 recited "wherein the ensemble statistics is a statistic taken from across a set of spectra." The Examiner indicated that it remains unclear as to what the ensemble statistic represents in the claim context.

Applicant has amended claims 52 and 53 to indicate that the ensemble statistic is a statistic taken from the control spectra obtained via mass spectrometry. This amendment narrows the scope of claims 52 and 53 and Applicant notes that claims 52 and 53 have never been rejected using prior art. Applicant respectfully submits that claims 52 and 53 are in condition for allowance.

With respect to claim 22, Applicant respectfully submits that the Examiner is mistaking breadth of terminology for indefiniteness. The MPEP states:

> "Breadth of a claim is not to be equated with indefiniteness. *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112, second paragraph." See *MPEP 2173.04*.

Simply because the term "ensemble statistic" is not narrowly defined in claim 22 does not render it indefinite, the term is broadly defined and as such the Examiner should address it with prior art if possible. However, the Examiner has failed to reject the claim using prior art. The MPEP states:

> "All words in a claim must be considered in judging the patentability of a claim against the prior art. *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970). The fact that terms may be indefinite does not make the claim obvious over the prior art. When the terms of a claim are considered to be indefinite, at least two approaches to the examination of an indefinite claim relative to the prior art are possible.

> First, where the degree of uncertainty is not great, and where the claim is subject
> to more than one interpretation and at least one interpretation would render the
> claim unpatentable over the prior art, an appropriate course of action would be for
> the examiner to enter two rejections: (A) a rejection based on indefiniteness
> under 35 U.S.C. 112, second paragraph; and (B) a rejection over the prior art
> based on the interpretation of the claims which renders the prior art applicable.
> See, e.g., *Ex parte Ionescu*, 222 USPQ 537 (Bd. App. 1984). See MPEP 2173.06.

Thus, the Examiner is correct in asserting that the ensemble statistic can be any number of
different statistics. However, this does not make the claim indefinite since for any particular
statistic, a skilled person would be able to determine whether that statistic is or is not an
ensemble statistic.

Separate from the issue of indefiniteness the Examiner has failed to provide any
alternative rejection based on prior art. The ensemble statistics is described on page 9 of the
specification and the use of the ensemble variance, calculated from the ensemble statistics, in the
context of a noise removal stage as claimed in claim 22, is described on page 13 of the
specification.

Claim 22 is definite and notice to that effect is respectfully requested. Claims 23-26 are
in condition for allowance by virtue of their dependence upon an allowable base claim.

5.   The Rejection under 35 U.S.C. §103(a)

Claims 5-21, 33-38, 40, 41 and 43 and 50 stand rejected under 35 U.S.C. § 103(a) as
being unpatentable over U.S. Patent no. 6,064,770 to Scarth et al. (hereinafter "Scarth") in view
of U.S. Patent no. 7,027,933 to Paulse et al. (hereinafter "Paulse").

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations
must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA
1974). "All words in a claim must be considered in judging the patentability of that claim against
the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an
independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is
nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)."

Scarth is directed to a method for detecting events in data. See *Scarth*, col. 3, lines 33-35.
Scarth gathers data, stores data, register arrays, selects data, stores data, normalizes the data,

clusters the data across arrays and generates centroids and maps. See *Scarth*, Fig. 2. The cluster centroids identify the characteristics of the events and the cluster maps depict the image domains associated with the events. See Scarth, *the Abstract*. The Office Action indicates that Scarth does not teach comparing indexed data to control data to evaluate common characteristics or the identification of noise using a threshold.See *the Office Action*, page 6.

Paulse discloses a method for analyzing mass spectra. The method involves entering into a digital computer a data set obtained from mass spectra from a plurality of samples, with each sample to be assigned to a class within a class set having two or more classes and each class is characterized by a different biological status. See *Paulse*, the Abstract. The classification model discriminates between the classes in the class set. See *Paulse*, the Abstract. Paulse discloses collecting mass spectra of samples associated with different biological traits, detecting signals above a predetermined signal to noise ratio, clustering signals with similar mass values, selecting signal clusters with peaks in more than n spectra, identifying mass values for selected signal clusters, detecting target signals and adding estimates for missing signals. See *Paulse* Fig. 4. Paulse does not disclose a common characteristic removal module comprising means for identifying and removing common characteristics of the set of indexed data by comparing indexed data to control data to evaluate common characteristics.

The Examiner argues that Paulse teaches "the analysis of mass spectra using a classification model that can differentiate between classes of samples associated with samples of different biological statuses." See *the Office Action*, page 6. The Examiner also indicates that Paulse removes noise by "applying various filters to the data." See *the Office Action*, page 6. The Examiner argues that it would have been obvious to one of "ordinary skill in the art the time of the invention to have used the mass spectra analysis systems of Paulse et al. with the identifying events in data by clustering data points into plural clusters according to data value patterns according to Scarth et al., as the invention of Paulse et al. is specifically drawn to the processing of mass spectrometric data." See *the Office Action*, page 6.

While Paulse teaches a classification method, the method is directed towards clustering signals with similar features. Paulse is not directed towards identifying and removing common characteristics of the set of indexed data wherein the set of indexed data comprises indexed

control-data and the common characteristic removal module comprises means for analyzing the indexed control-data to identify the portions of the set of indexed data that contain common characteristics. It appears to be that what Paulse is directed towards is the opposite of what the present invention is directed towards.

Claims 10 and 14 require having a "common characteristic removal module comprising means for identifying and removing common characteristics of the set of indexed data" and "wherein the set of indexed data comprises indexed control-data and the common characteristic removal module comprises means for analyzing the indexed control-data to identify the portions of the set of indexed data that contain common characteristics." As discussed above, neither Scarth nor Paulse teach identifying and removing common characteristics of a set of indexed data wherein the indexed data comprises indexed control-data and the indexed control data is analyzed to identify the common characteristics.

Similarly, to claim 10 and 14, claims 37 and 41 require "wherein the set of indexed data comprises indexed control-data and the step of identifying and removing common characteristics comprises analyzing the indexed control-data to identify the portions of the set of indexed data that contain common characteristics." As previously mentioned, neither Scarth nor Paulse teach identifying and removing common characteristics of a set of indexed data wherein the indexed data comprises indexed control-data and the indexed control data is analyzed to identify the common characteristics.

Since each limitation of claims 10, 14, 37 and 41 are not disclosed by either Scarth or Paulse, a *prima facie,* case of obviousness is not established. Claims 5-9, 11-13, 15-21, 33-36, 38, 40, 43 and 50 are in condition for allowance by virtue of their dependence upon allowable base claims.

6.   Conclusion

Applicant has made an earnest effort to place this application in condition for allowance. If the Examiner feels that a telephone interview would expedite prosecution of this patent application, he or she is respectfully invited to telephone the undersigned at 215-599-0600. Contact with the undersigned via electronic mail at takupstas@patentwise.com is hereby authorized[1] per MPEP 502.03.

Respectfully submitted,

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[1] Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file.